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ADDITIONAL INFORMATION ON PHYSICS INSTITUTE IMENI P. N. LEBEDEV, ACADEMY OF SCIENCES USSR

The information in this report, which supplements and should be read in conjunction with FDD Summary No 28 (see also, DSI No 30, June 1951), is taken from three volumes of the Trudy (Works) of the Physics Institute imeni P. N. Lebedev (FIAN). Part of the data is taken from a speech made by Academician S. I. Vavilov at a session of the Institute. Vavilov's speech was printed in Vol III, No 1 of the Trudy under the title "A Short Outline of the History of the Physics Study, the Physics Laboratory, and the Physics Institute of the Academy of Sciences USSR" (these are different names for different stages of development of the institute).

The following list of laboratories is taken from Vavilov's article, as are also the names of those members identified by Vavilov whose names do not appear in FDD Summary No 28.

In addition, the names of authors and titles of articles printed in these three volumes of the Trudy are listed under the laboratory to which the author states that he belongs. Occasionally, authors do not indicate their affiliation in their articles, but they acknowledge the assistance and direction of certain men who are definitely known to be associated with a specific laboratory. In these cases, it is assumed that the writers of the articles have also worked in this laboratory, and they are therefore so listed.

/Numbers in parentheses refer to appended sources./

Oscillations Laboratory L. I. Mandel'shtam

In 1945, Academician S. I. Vavilov stated in an article that the laboratory was directed by Academician N. D. Papeleksi, who has since died. There is no further information as to who is now directing the work of the laboratory. Vavilov also listed Academician B. A. Vvedenskiy and P. A. Ryazin, Doctor of Physicomathematical Sciences, as members, and stated that the basic direction of research of the laboratory was the investigation of the propagation of electromagnetic waves and the problems of nonlinear oscillations.(1)

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Acoustics Laboratory

In 1945, N. N. Andreyev, Corresponding Member, Academy of Sciences USSR, was director of this institute and the following were given as members: Yu. N. Sukharevskiy, Doctor of Technical Sciences, and G. D. Malyuzhinets, Doctor of Physicomathematical Sciences.(1)

The basic task of the laboratory was research on questions of hydroacoustics, but it was also stated that in prewar years, the laboratory carried out much work on architectural acoustics in close connection with the construction of the Palace of the Soviets on the Kaluzhskiy Shosse. In 1941, a special building was built for the laboratory on the space granted to the Physics Institutes for a new main building. This had special features such as reverberating rooms.(1)

Vavilov also reported that Andreyev had raised the question of separating the Acoustics Laboratory from the institute and making it into an independant institute within the framework of the Department of Physicomathematical Sciences.(1)

Optics Laboratory

This laboratory is referred to by Vavilov as the Laboratory of Physical Optics, directed by G. S. Landsberg, Corresponding Member, Academy of Sciences USSR.(1) A later reference to Landsberg gives him the title of Academician(3). Vavilov states that the main task of the laboratory is the application of combined scattering of light and other methods to the molecular analysis and research of the structure of liquids and crystals.(1)

Additional members of the laboratory and information about their works published in the Trudy are as follows:

G. P. Motulevich, "The Molecular Scattering of Light in Crystals." A dissertation for the degree of Candidate of Physicomathematical Sciences defended in the institute 27 February 1947. The work gives credit to Landsberg for suggesting the theme and to Academicians M. A. Leontovich and V. L. Ginzburg for consultations in connection with it. Motulevich also mentions work done in the Optics Laboratory of Moscow State University under Landsberg's direction. This work is referred to in the bibliography at the end of Motulevich's article as having been published under Landsberg's own name, in the years 1927, 1929, and 1930.(3)

M. M. Sushchinskiy, "Molecular Analysis by the Method of Combined Scattering of Light." A dissertation for the degree of Candidate of Physicomathematical Sciences defended at the institute 24 November 1947. Sushchinskiy states that it is part of a cycle of research on the development and use of methods of molecular analysis on the basis of the effect of combined scattering of light which is being carried out by the laboratory over a number of years. He also gives credit to Landsberg for his general direction of the work and to the following members of the Optics Laboratory for their help: P. A. Vazhulin, B. I. Malyshev, Kh. Yu. Sterin, and L. S. Mayants.(3) [redacted] "Soviet Men of Science" lists Mayants as a member of the Oscillations Laboratory in 1949.

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L. S. Mayants, "The Theory of Characteristic Frequencies and Some of Its Uses." A dissertation for the degree of Doctor of Physicomathematical Sciences which was defended in the institute 24 November 1947. Mayants gives credit to Academician G. S. Landsberg for his interest and advice in the work, but gives no information as to in which laboratory the work was actually done.(3)

P. A. Vazhulin, "The Quenching of Ultrasonic Waves in Liquids." A dissertation for the degree of Doctor of Physicomathematical Sciences which was defended at the institute 22 June 1948. The opening paragraph, which is of interest in showing the direction of the research of the laboratory, is as follows:

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"This dissertation is the result of many years of research by the author on the quenching of ultrasonic waves in liquids. The research is part of the general plan of work of the Optical Laboratory on research o. the molecular strength, characterizing a substance in the condensed form. The basic direction of the Optics Laboratory is connected with research on the molecular scattering of light in heavy and liquid bodies, and of those intra- and intermolecular forces, the action of which disturbs the optical homogeneity of the substance."

Vazhulin thanks Academicians G. S. Landsberg and M. A. Leontovich for their continual interest in his work and for the valuable discussions he had with them on numberless questions touching it.(3)

Vul's Laboratory

Vavilov, in his article in 1945, states that the Laboratory of the Physics of Dielectrics is headed by B. M. Vul, Corresponding Member, Academy of Sciences USSR. No other personnel are identified. The basic task of the laboratory, as stated by Vavilov, is physical research on dielectric properties and the electrical breakdown of various materials.(1)

Atomic Nucleus Laboratory

Vavilov states that in 1945 D. V. Skobel'tsyn, Corresponding Member, Academy of Sciences USSR, was chief of this laboratory and lists the following members:

V. I. Veksler, I. M. Frank, P. A. Cherenkov, and L. V. Groshev, Doctors of Physicomathematical Sciences.

S. N. Vernov, Doctor of Physicomathematical Sciences, was also listed, but it is presumed that he left the laboratory on the formation of Vernov's division of the Institute (See FTD Summary No 20, page 61.)(1)

Vavilov also states that the basic problem of the laboratory was research on the nature of cosmic rays.(1)

The following members and their works have been identified:

S. N. Vernov, "The Latitudinal Effect of Cosmic Rays in the Stratosphere and the Proof of the Cascade Theory." A dissertation for the degree of Doctor of Physicomathematical Sciences defended in 1939.(1)

L. V. Groshev, "Pair Production in Gases Under the Action of Gamma Rays." A dissertation for the degree of Doctor of Physicomathematical Sciences defended in 1940.(1)

O. N. Vavilov (who died as the result of a mountaineering accident in February 1946), "Transitional Effects of Cosmic and Gamma Rays." This is his dissertation for the degree of Candidate of Physicomathematical Sciences which was defended in the Institute on 20 December 1945. This is part of the results of the Institute's expedition to the Pamirs which took place [illegible] December 1944. The author thanks S. N. Vernov and I. M. Frank, who supervised parts of his work, D. V. Skobel'tsyn and V. I. Veksler, who showed continual interest in it, and S. Z. Belen'kiy, who assisted with the calculations.(2)

I. Ye. Lazareva, "Atmospheric Showers of Cosmic Rays at a Height of 3,860 Meters Above Sea Level." Dissertation for the degree of Candidate of Physicomathematical Sciences defended at the Institute 3 November 1945. Thanks are given to Academician D. V. Skobel'tsyn, who directed the work, and to V. I. Veksler, Corresponding Member, Academy of Sciences USSR, who gave much valuable advice.(2)

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N. A. Dobrotin, "Heavy Particles in the Composition of Cosmic Rays." A dissertation for the degree of Doctor of Physicomathematical Science defended in the institute 21 June 1947.(2)

L. N. Bell, "Research on the Structure of Atmospheric Showers of Cosmic Rays by the Method of Plane Proportional Counters." A dissertation for the degree of Candidate of Physicomathematical Sciences defended at the institute 10 May 1948. At the end, the author thanks V. I. Veksler for the direction of his work, D. V. Skobel'tsyn and N. A. Dobrotin for their advice, S. Z. Belen'kiy for discussions on the cascade theory and N. G. Birger and D. F. Rakitin for their assistance in the completion of the measurements.(2)

S. A. Azimov, "Research of Cosmic Rays With the Aid of a Curved Instrument (Krugovaya Ustanovka)." Dissertation for the degree of Candidate of Physicomathematical Sciences defended in the institute 10 May 1948. Thanks are given to V. I. Veksler and N. A. Dobrotin.(2)

Laboratory of Spectral Analysis

Vavilov states that in 1945 S. L. Mandel'shtam, Doctor of Physicomathematical Sciences, was the head of this laboratory but no further members are identified in his article.(1) The only further work mentioned, which does not state that it was done in the laboratory, is M. D. Galanin's dissertation for the degree of Candidate of Physicomathematical Sciences, "The Time of Excited State of Molecules and of the Property of Fluorescence of Solutions," which he defended in the institute 29 July 1948. In this work, Galanin states only that the work had been done under the direction of S. I. Vavilov.(3)

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Luminescence Laboratory

Vavilov says that the aims of this laboratory are research on the nature and use of crystal luminophosphors. He himself directed it; he gives the following list of members: V. L. Levshin, V. V. Antonov-Romanovskiy, and L. A. Tumerman, Doctors of Physicomathematical Sciences, M. A. Konstantinova, Doctor of Chemical Sciences.(1)

In addition, the following give specific mention of the laboratory in published works

E. I. Adirovich, "The Elementary Law of Quenching of Crystal Phosphors and the Phenomenon of Cold Flashes," which was a dissertation for the degree of Doctor of Physicomathematical Sciences defended in the institute 28 March 1949. In the article, Adirovich states that A. A. Cherepnev assisted him by the preparation of nine different kinds of zinc sulfide in the laboratory. Also he thanks Vavilov, under whose direction the work was done.(3)

M. N. Alentsev, "The Dependence of Discharge of Photoluminescence on the Wave Length of the Exciting Light." A dissertation for the degree of Candidate of Physicomathematical Sciences, defended at the institute 31 May 1949. The author thanks S. I. Vavilov, under whose direction the work was done in the Luminescence Laboratory.(3)

Laboratory of Theoretical Physics

Vavilov states that this laboratory was directed by I. Ye. Tamm, Corresponding Member, Academy of Sciences USSR, and that the following were members in 1945: Academician V. A. Fok, V. L. Ginzburg, Doctor of Physicomathematical Sciences, F. V. Nikol'skiy, Ye. L. Feynberg, M. A. Markov, and D. I. Blokhintsev, Corresponding Member Academy of Sciences USSR.(1)

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It is possible, however, that the laboratory has been disbanded and its members merged into other organizations. [redacted] Tamm and Markov [redacted] members of the Atomic Nucleus Laboratory in 1950 and 1948 respectively.)

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1. Trudy Fizicheskogo Instituta AN SSSR, Vol III, Issue 1 1945 (FDD No 513573)

2. Ibid., Vol IV, 1949 [redacted]

3. Ibid., Vol V, 1950

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